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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/941,494	08/29/2001	Mitsuru Senoo	A34630	6246
21003	7590	09/08/2005	EXAMINER	
BAKER & BOTTS 30 ROCKEFELLER PLAZA NEW YORK, NY 10112			PROCTOR, JASON SCOTT	
			ART UNIT	PAPER NUMBER
			2123	

DATE MAILED: 09/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/941,494	SENOO ET AL.
	Examiner	Art Unit
	Jason Proctor	2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 17 June 2005.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 9-14 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 9-14 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 29 August 2001 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Claims 1-8 were presented for examination and rejected in Office Action dated 14 January 2005.

Applicants' response dated 17 June 2005 has cancelled claims 1-8 and added new claims 9-14.

Claims 9-14 have been rejected.

The following discussion of "the claims" applies to new claims 9-14, however is in response to rejections of claims 1-8. New claims 9-14 recite essentially the same limitations as cancelled claims 1-8, but are drafted in a different format and address the rejections of the previous Office Action.

Claim Objections

1. Claim 10 is objected to because of the following informalities: line 6 contains a misplaced period, as in "cross-sectional area. (5) material of a pipe". Appropriate correction is required.

2. Claims 10 and 13 are objected to because of the following informalities: The clause containing a numbered list of input options should be separated by a line indentation as per 37 CFR 1.75. The use of numerals within parenthesis in a claim generally indicates a reference numeral from the figures, which does not appear to be what Applicants' intend.

Rejections under 35 U.S.C. § 112, first paragraph

Regarding the rejection of the claims under 35 U.S.C. § 112, first paragraph, as lacking adequate written description, the Examiner thanks Applicants for clarifying that the scope of Applicants' claimed invention does not include particular mathematical formulae. Applicants' response states that:

The basic formulas, however, are generally known to those of skill in the art and are, moreover, ancillary to the substance of the invention. Applicant does not claim the equations or formulas in the abstract as the present invention. Rather, the calculations using such formulas are made in order to achieve the end objectives of the present invention, i.e., the selection of the optimal device(s) for utilization in an air blow system.

Applicants further cite several references showing suitable formulas that were known in the art at the time the Application was filed.

Regarding the rejection of the claims under 35 U.S.C. § 112, first paragraph, as lacking enablement, the Examiner thanks Applicants for amending the specification and the claims to clearly recite which steps are performed by the human operator.

In light of these arguments and amendments, the previous rejections under 35 U.S.C. § 112, first paragraph, have been withdrawn.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 9-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant

art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 9-14 claim methods and computer readable media storing computer executable methods which are not described by the specification nor shown in the drawings. The differences between the claims and the disclosure are exemplified by the following:

Claim 9 recites a step in which the computer calculates “a flow-rate”, “a blow impact pressure”, or “a pressure immediately upstream”. The Examiner has reviewed the disclosure and has concluded that the closest explanation of this portion of claim 9 is Fig. 2 and page 9, line 18 – page 11, line 15. On all accounts, the disclosure of the invention describes always calculating “a pressure immediately upstream” when calculating “a flow-rate” or “a blow impact pressure”. The quoted step of claim 9 does not appear to be described in the application.

The Examiner admits, however, that in light of the complicated flow charts and specification, this analysis may be in error. Therefore, the Examiner respectfully requests that Applicants carefully review the claims, amend them if necessary, and provide concise citations of where adequate written description for each claim is found in the disclosure. The example set forth regarding claim 9 represents at least one limitation in each of the claims that recites either a combination of inputs or a combination of calculations. Applicants’ are specifically requested to show adequate written support for each step of providing inputs or calculating.

Rejections under 35 U.S.C. § 112, second paragraph

Applicants’ amendments to the form of the claims have overcome the previous rejections under 35 U.S.C. § 112, second paragraph. Those rejections have been withdrawn.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 9 and 12 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 9 and 12 recite that a step of calculation is repeated "necessary times" which is vague and indefinite. The Examiner has noted the use of this phrase in the specification, however there is insufficient explanation to render the term definite. The Examiner respectfully suggests replacing the phrase "necessary times" with a definite description of when the step terminates, or simply with "a one or more times".

5. Claims 10, 11, and 13 recite the limitation "the recommended circuit". There is insufficient antecedent basis for this limitation in the claim. The Examiner presumes the first occurrence of this phrase should read "a recommended circuit". Correction or clarification is required.

Rejections under 35 U.S.C. § 101

The Examiner thanks Applicants for arguments regarding the rejection of the claims under 35 U.S.C. § 101. The following statement contributes significantly to the persuasiveness of Applicants' argument:

The output of any equations that are utilized are not ends in themselves – rather, they operate on real world values to produce results which are further utilized to produce a concrete end result: the optimal selection of an air flow device.

The claims, as amended, all conclude with the step of utilizing the results to make an optimal selection of an air flow device. As a result, the previous rejections under 35 U.S.C. §101 have been withdrawn.

Rejections under 35 U.S.C. § 103

Regarding the rejections of the claims under 35 U.S.C. § 103 as being unpatentable in view of “Mechanical Engineers’ Handbook,” second edition, edited by Myer Kutz (Kutz), Applicants argue primarily that:

The equations, despite being well-known in the art, are distinct from the steps which operate on them. In other words, a program which takes some specified input, generates an output, and executes, for example, Bernoulli’s equation at some point in the calculation process, is no more obvious than a program which does not use Bernoulli’s equation. Applicant respectfully submits that Examiner’s rejection on the basis of the existence of basic equations in an engineers’ handbook is akin to rejecting all claims that include steps executed by a computer on the basis of finding examples of multiplication in a math textbook. Neither rejection is founded on the principles of §103, which demands rejection of claims when said claims “would have been obvious at the time the invention was made to a person having ordinary skill in the art.”

Applicants’ arguments are unpersuasive for the following reasons.

Applicants’ example regarding the obviousness of a computer program which uses Bernoulli’s equation is unpersuasive. Programming a computer to solve Bernoulli’s equation, which describes the flow of incompressible nonviscous fluid, to find the solution to a incompressible nonviscous fluid flow problem, would be clearly obvious to a person of ordinary skill in the art under the principles of 35 U.S.C. § 103. This conclusion is supported by, for example, *In re Venner*, 262 F.2d 91, 95, 120 USPQ 193, 194 (CCPA 1958). It is known in the art to use Bernoulli’s equation to solve certain fluid flow problems; automating the process by programming a computer to perform the calculations would be obvious.

The claimed inventions are all concerned with calculating fluid flow. Thus the “basic equations in an engineers’ handbook” which describe fluid flow, in light of *In re Venner*, render

obvious the programmed computer that solves those equations. Of course, Applicants' traversal of the 35 U.S.C. § 112, first paragraph rejections admit that suitable equations for the invention are known in the art, whether shown by Kutz or otherwise. Applicants' arguments include a passing reference to the "structure and arrangement" of the claimed steps, however the majority of those steps merely provide the necessary input to the well-known equations. Those steps would have been obvious because automating the process of solving those equations necessitates certain steps of receiving user input. Solving those known equations manually requires steps of "providing input" for certain variables, thus the computer-implemented analogy would have been obvious at the time of Applicants' invention.

Applicants' arguments have been considered, but are unpersuasive.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 9-14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over "Mechanical Engineers' Handbook", second edition, edited by Myer Kutz, hereafter referred to as Kutz.

Regarding claims 9-14, Kutz teaches computations for viscous fluid flow in ducts (sections 40.11-40.13, specifically pages 1326-1328 regarding nozzles), including nozzle diameter (Fig. 40.40 (b), dimension *d*) and using Bernoulli equations (equations on page 1327).

Art Unit: 2123

Further, by Applicant's own admission (specification, page 1, lines 21-26) it is known in the art that the effect of air blow (blow impact pressure, etc.) is determined by the nozzle diameter, the pressure immediately upstream of the nozzle, and the work distance (i.e. the distance between the nozzle and the workpiece).

Although Kutz does not expressly teach a system using a computer or a computer readable storage medium storing a computer program to execute a method for solving these equations, MPEP 2144.04(III) states:

In re Venner, 262 F.2d 91, 95, 120 USPQ 193, 194 (CCPA 1958) (Appellant argued that claims to a permanent mold casting apparatus for molding trunk pistons were allowable over the prior art because the claimed invention combined "old permanent-mold structures together with a timer and solenoid which automatically actuates the known pressure valve system to release the inner core after a predetermined time has elapsed." The court held that broadly providing an automatic or mechanical means to replace a manual activity which accomplished the same result is not sufficient to distinguish over the prior art.).

The claimed inventions of claims 9-14 automate the manual process of solving equations known in the art, such as the equations taught by Kutz for viscous fluid flow in ducts. Regarding the recited steps of inputting in claims 9-14, Applicant's specification teaches that a human operator performs these steps. Regarding the recited steps of selecting, Applicant's specification teaches that these steps are the result of the computing steps.

It would have been obvious to a person of ordinary skill in the art at the time of Applicant's invention to automate the previously manual steps of computing equations for viscous fluid flow in ducts as taught by Kutz by performing them using a computer. It would have been obvious to a person of ordinary skill in the art at the time of Applicant's invention to include the factors which determine the effect of air blow as known in the art. It would have been obvious to a person of ordinary skill in the art at the time of Applicant's invention to prompt a human operator for user input and to select the system parameters that produce the

Art Unit: 2123

desired performance according to the equations for viscous fluid flow in ducts. Such a system would reduce the design time and increase the reliability in the design for the proposed system.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Proctor whose telephone number is (571) 272-3713. The examiner can normally be reached on 8:30 am-4:30 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached at (571) 272-3749. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: 571-272-2100. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jason Proctor
Examiner
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Paul L. Rodriguez 9/6/05
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